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Forest Insect Laboratory
Berkeley, California
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FOREST INSECT SURVEY OF THE INYO NATIONAL FOREST

Season of 1941

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INTRODUCTION

The 1941 forest insect survey of the Inyo National Forest was made during the period from September 19 to 23, 1941. The field crew consisted of C. B. Eaton and J. E. Patterson of the Forest Insect Laboratory, Berkeley, California. Mr. H. H. Simpson of the Inyo National Forest accompanied the field party during a part of the survey, giving valuable assistance in many ways.

The purpose of the survey, as in former years, was to appraise the amount and character of the current year's insect losses in the commercial forests and on the recreational areas. Insect conditions on the open brush ranges were also surveyed.

The survey was largely of the reconnaissance type, supplemented by established plot cruises and road strips. The principal forested areas were covered, as well as the rnages, lying between the Sierras and White Mountains. The two sample plots, at Mammoth and at Mono Craters, were intensively cruised. Road strip surveys were established and run in the Mammoth Lakes area, Glass Creek area, Bald Mountain area, and on the Casa Diablo Plateau. These examinations did not cover all the forest, but enough data were secured to serve as a basis for a report on current conditions.

GENERAL INFESTATION CONDITIONS

Bark beetle conditions generally throughout the Forest are endemic and no serious infestations were found. Losses in Jeffrey pine, caused by Dendroctonus jeffreyi and Ips emarginatus, were static in comparison with previous years. A slight increase in these losses were noted in the Glass Creek and Bald Mountain areas, but were not above normal for these stands.

Infestations of Scolytus ventralis and Scolytus subscaber in white fir have generally decreased, but are still above normal on areas where previous epidemics of Oslar's tussock moth had greatly weakened the host trees.

Infestations of the mountain pine beetle, Dendroctonus monticolae, have generally decreased in lodgepole pine and have not appreciably increased in white pine.

Needleminers, Recurvaria spp., formerly active in localized stands of lodgepole pine and pinon pine, have largely disappeared from these sites, and defoliated trees are rapidly recovering.

The pine tip moth, Rhyacionia, is still active throughout the nut pine stands. These infestations appear to be increasing.

The great basin tent caterpillar, Malacosoma fragilis, did not spread greatly from localized epidemic areas during the year and damage to browse was not abnormal. However, the number of eggs laid greatly exceeded normal production indicating a higher population of caterpillars next year.

Conditions in the broad leaf species continue to improve. Damage caused by the aspen leaf roller, Archips sp., and the aspen borer, Saperda, was greatly reduced from former status, permitting recovery of attacked trees on many of the principal recreational areas.

Bark Beetle Infestations in Jeffrey Pine

Bark beetle losses during the year have generally decreased from former status throughout these stands. The current infestation is as low as has been recorded during the past ten years. This loss, however, has not been uniform and there are a few areas where it equalled the relatively high point of 1940. These areas are located on the plateau south of Glass Creek and on the west slope of Bald Mountain. Even here the loss is considered to be below the normal for these stands. The 1941 loss throughout the Jeffrey pine stands is estimated at about 10 trees per section.

A tabulation of losses in Jeffrey pine and in white fir on the check plots and on the road strips cruised is shown in Tables I and II. These data also show the infestation trends during the 3-year period 1939 to 1941 inclusive.

Table I. Measured Losses on Sample Plots, 1939-1941*

Sample Plot	Species	1939 No. Trees	1939 Trees per A	1939 Volume b.m.	1940 No. Trees	1940 Trees per A	1940 Volume b.m.	1941 No. Trees	1941 Trees per A	1941 Volume b.m.
Mammoth	J.P.	1	.002	1,640	6	.014	7,010	3	.007	4,490
430 A.	W.F.	0			0			0		
	Plot Total	1	.002	1,640	6	.014	7,010	3	.007	4,490
Mono	J.P.	1	.004	2,570	3	.012	2,280	3	.012	800
Craters	W.F.	1	.004	1,100	4	.016	3,400	2	.008	1,600
260 A.	Plot Total	2	.008	3,670	7	.03	5,680	5	.02	2,400

* Visible loss to September only. Total loss cannot be measured until July 1942.

Table II. Area Road Strip Losses, 1940 and 1941.

Area	Road Strip	Species	1940 No. Trees	1940 Volume b.m.	1940 Est. Trees per Sec.	1941 No. Trees	1941 Volume b.m.	1941 Est. Trees per Sec.
Mammoth Lakes	528 A.	J.P.	1	1,200	2	1	1,400	2
		W.F.	1	2,020	2	0		2
Glass Creek	720 A.	J.P.	18	14,400	20	13	11,700	15
		W.F.	0			0		
Casa Diablo	720 A.	J.P.	2	1,400	3	1	600	2
		W.F.	0			0		
Bald Mountain	160 A.	J.P.	3	2,100	12	2	1,600	10
		W.F.	6	4,800	25	4	2,800	18

The estimated total infestation for the year on the four principal infestation areas is shown in Table III.

Table III. Estimated Area Losses, 1940-1941

Area	Size in Acres	Species	1940 Number Trees	1940 Volume b.m.	1941 Number Trees	1941 Volume b.m.
Mammoth Lakes	16,000	J.P.	60	60,000	50	50,000
		W.F.	200	180,000	160	145,000
Glass Creek	32,000	J.P.	200	160,000	140	112,000
		W.F.	250	300,000	220	264,000
Casa Diablo Plateau	6,400	J.P.	30	18,000	25	15,000
		W.F.	0		0	
Bald Mountain	16,000	J.P.	180	125,000	150	105,000
		W.F.	600	480,000	400	320,000

Bark Beetle Infestations in White Fir

The current infestation in white fir is due in the greater measure to the activity of Scolytus ventralis and Scolytus subscaber which built up to epidemic proportions in stands defoliated prior to 1938 by Oslar's tussock moth. Epidemic infestations of these two bark beetles continue in the defoliated areas although the defoliator disappeared in 1938. Since that time approximately 46 percent of the defoliated trees have been attacked and killed. The 1941 loss represents 4 percent of this amount. The defoliated areas aggregate a total of 10,000 acres on which the losses sustained since the last defoliation is estimated at 340,000 trees. Only those trees which suffered medium to severe defoliation have been attacked by the bark beetles. However, these groups represent 63 percent of the total trees in the epidemic areas. It is expected that attacks by the bark beetles will continue until all the defoliated trees are attacked and killed, or until these trees recover sufficiently to successfully repel the bark beetles.

Bark Beetle Infestations in Lodgepole Pine and White Pine

In recent years the mountain pine beetle, Dendroctonus monticolae, has been active in lodgepole pine and mountain pine on several recreational areas, causing the loss of many overmature trees on camp sites and on developed areas. A decline in these losses began in 1940, and has continued through 1941. During the year losses caused by this beetle at Mammoth Lakes, and on Bishop and Rock Creeks, have reached such a low ebb that they may be considered negligible.

Needleminer Infestation in Pinon Pine

Consistent with the trend reported last year, the pinon pine needleminer, Recurvaria sp., has now practically disappeared from the old epidemic area at Casa Diablo Mountain. Only a few mined needles, representing the activity of the 1941 brood, could be found on this area. It is apparent that the epidemic has run its course and has subsided. Defoliated trees are showing evidence of rapid recovery.

Tip Moth Infestation in Pinon Pine

Infestations of the pinon tip moth, Rhyacionia neomexicana, have slightly increased on previously infested areas, and has spread to additional nut pine stands. The range of the insect at the close of the 1941 season extended from Glass Mountain to Walker Pass. Epidemic centers were found in Wild Horse Canyon in the Benton Range, on Casa Diablo Plateau, on Pine Creek, and on Bishop Creek. Injury consists of dying terminals, partial defoliation, retarded tree growth,

and loss of seed crops. No practical measures of direct control have been developed. Reliance upon the insect's natural enemies, parasites and predators, to eventually effect control is the only feasible management at the present time.

Great Basin Tent Caterpillar on Open Ranges

During the year the range of Malacosoma fragilis was coextensive with its principal host Purshia tridentata. Other hosts fed upon were desert peach, gooseberry, and black sage. The caterpillar population during the feeding period was not greater than in the previous year and damage to the hosts was slight. However, the number of eggs laid during the flight period was greatly above normal. These should produce a high population of feeding caterpillars in the spring of 1942. Greatly increased damage to range browse is expected to result from this potential epidemic infestation. Egg masses were deposited on all the known hosts as well as on several additional plants.

SUMMARY AND RECOMMENDATIONS

A reconnaissance survey was made of the Inyo National Forest exclusive of the White Mountain district in September 1941.

Current infestations in Jeffrey pine were found to be endemic; causing a minimum amount of loss. Control work is not now recommended in any stands of this species.

Bark Beetle infestations in white fir during the year were largely limited to trees defoliated by Oslar's tussock moth in the epidemic of 1934-1938. These infestations have resulted in excessive loss of weakened trees. They are expected to continue until the trees recover from the effects of defoliation. Due to the remoteness of these stands, and their probable early recovery, control is not feasible or recommended.

Infestations in lodgepole and white pine have largely disappeared from the recreational areas formerly affected.

Needleminer infestations have practically disappeared on all areas where they were formerly active.

Tip moth infestation of pinon pine has spread to all forests of this nut pine. Control measures are not recommended.

Potential increase in the great basin tent caterpillar infestation in 1942 is indicated by the abnormal number of eggs deposited during the flight period of 1941. Severe damage to browse is expected to result from this increase in population.